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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/071,670	02/08/2002	Philip J. Kellman	PD-99W171	4015
22494	7590	09/20/2005	EXAMINER	
DALY, CROWLEY, MOFFORD & DURKEE, LLP			CHUNG, DANIEL J	
SUITE 301A			ART UNIT	
354A TURNPIKE STREET			PAPER NUMBER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/071,670

Applicant(s)

KELLMAN ET AL.

Examiner

Daniel J. Chung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 August 2005.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-38 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-38 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

Claims 1-38 are presented for examination. This office action is in response to the amendment filed on 8-29-2005.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hancock (5,179,377) in view of Beasley (5,845,874), and further in view of Masumoto (5,210,540).

Regarding claim 1, Hancock discloses that the claimed feature of a system for conveying location of an object comprising: first means [80] for receiving location information regarding the object, the location information including a first coordinate x, a second coordinate y, and a third coordinate z, wherein [the third coordinate z represents an absolute altitude of the object relative to a geographic reference]; second means [82] for correlating the first and second coordinates (x,y) with a location of an icon in two-dimensional space in display[10, 40]; and third means [82] for correlating the third coordinate z with a characteristic of the icon, wherein the characteristic of the icon

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changes in response to changes in the third coordinate z, and wherein the relationship between the characteristic [i.e. "color", "shape", "size"] of the icon which changes and the third coordinate z is substantially monotonic. (See Abstract line 6-10, Fig 1-3, col 1 line 22-37, col 2 line 28-47)

Hancock does not specifically disclose that z-coordinate represents an absolute altitude of the object, wherein the characteristic of the icon changes in response to changes in z-coordinate. However, such limitation is shown in the teaching of Beasley. [i.e. "a color of the aircraft to indicate altitude information"; See col 5 line 32-40] It would have been obvious to one skilled in the art to incorporate the teaching of Beasley into the teaching of Hancock [i.e. adding the representation of absolute altitude of aircrafts in display], in order to improve the user's responsiveness with correct perception of display data, thereby eliminating potential air traffic conflicts, as such improvement [i.e. implementing the representation of absolute altitude information with its value indicated in characteristic of object] is also advantageously desirable in the teaching of Hancock for enhancing user's situational awareness with rapid interpretation of display information at simple manner.

Hancock does not explicitly disclose the utilizing of "an absolute altitude of the object", as recited claim. However, such limitation is shown in the teaching of Masumoto. [i.e. global positioning system [GPS] with representing absolute altitude data of object] (See Fig 2-4, col 5 line 20-31) It would have been obvious to one skilled in

the art to incorporate the teaching of Masumoto into the teaching of Hancock [i.e. utilizing of absolute altitude data of the object rather than using of differential altitudes data], in order to improve the user's responsiveness for perceive proper altitude value of object, as such improvement is also advantageously desirable in the teaching of Hancock for representing the object's altitude without complicated manner.

Regarding claim 2, refer to the discussion for the claim 1 hereinabove, Hancock discloses that the characteristic of the icon which changes is a size of the icon and third means correlates the third coordinate  $z$  with the size of the icon. (See Fig 1-2)

Regarding claim 3, Hancock discloses that first and second coordinates  $(x,y)$  represent latitude and longitude. (See Fig 1-3)

Regarding claim 4, Hancock discloses that object is an aircraft. (See Fig 1-3)

Regarding claim 5, Hancock discloses that size of the icon is selected from a limited number of discriminably different sizes. (See Fig 1-2)

Regarding claim 6, Hancock discloses that third means includes a continuously variable relationship between the icon size and the third coordinate  $z$ . (See Fig 1-2)

Regarding claim 7, Hancock discloses that size of the icon is directly correlated with the third coordinate  $z$ , such that a larger value of the third coordinate  $z$  correlates with a larger size of the icon. (See Fig 2)

Regarding claim 8, Hancock discloses that size of the icon is inversely, non-linearly, or discontinuously, correlated with the third coordinate  $z$ : an inverse correlation is such that a larger value of the third coordinate  $z$  correlates with a smaller size of the icon. (See Fig 2)

Regarding claim 9, refer to the discussion for the claim 1 hereinabove, Hancock discloses that the claimed feature of a system for conveying location of an object comprising: first means [80] for receiving location information regarding the object, the location information including a first coordinate  $x$ , a second coordinate  $y$ , and a third coordinate  $z$ , wherein the third coordinate  $z$  represents an absolute altitude of the object relative to a geographic reference; second means [82] for correlating the first and second coordinates  $(x,y)$  with a location of an icon in display; and third means [82] for correlating the third coordinate  $z$  with at least one of size, color, grayscale, intensity, and shape of the icon, wherein the at least one of the size (See Fig 1-2), the color (See col 2 line 21-24, col 2 line 31-36), the grayscale, the intensity, and the shape of the icon changes in response to changes in the third coordinate  $z$ , and wherein the relationship between the at least one of the size, the color, the grayscale, the intensity, and the

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shape of the icon and the third coordinate  $z$  is substantially monotonic. (See Abstract line 6-10, Fig 1-3, col 1 line 22-37, col 2 line 28-47)

Regarding claim 10, refer to the discussion for the claim 1 hereinabove, Hancock discloses that the claimed feature of a system for conveying location of an object comprising: first means [80] for receiving location information regarding the object, the location information including a first coordinate  $x$ , a second coordinate  $y$ , and a third coordinate  $z$ , wherein the third coordinate  $z$  represents an absolute altitude of the object relative to a geographic reference; second means [82] for correlating the first and second coordinates  $(x,y)$  with a location of an icon in display [10,40] ; and third means [82] for correlating the third coordinate  $z$  with a selected one of size (See Fig 1-2), color (See col 2 line 21-24, col 2 line 31-36), grayscale, intensity, and shape of the icon, wherein the selected one of the size, the color, the grayscale, the intensity, and the shape of the icon changes in response to changes in the third coordinate  $z$ , and wherein the relationship between the at least one of the size, the color, the grayscale, the intensity, and the shape of the icon and the third coordinate  $z$  is substantially monotonic. (See Abstract line 6-10, Fig 1-3, col 1 line 22-37, col 2 line 28-47)

Regarding claim 11, refer to the discussion for the claim 1 hereinabove, Hancock discloses that the claimed feature of a system for conveying location of an object comprising: first means [80] for receiving location information regarding the object, the location information including a first coordinate  $x$ , a second coordinate  $y$ , and a third

coordinate z, wherein the third coordinate z represents an absolute altitude of the object relative to a geographic reference; second means [82] for correlating the first and second coordinates (x,y) with a location of an icon in display [10,40]; and third means [82] for correlating the third coordinate z with a selected two or more of size (See Fig 1, Fig 2), color (See col 2 line 21-24, col 2 line 31-36), grayscale, intensity, and shape of the icon, wherein the selected two or more of the size, the color, the grayscale, the intensity, and the shape of the icon changes in response to changes in the third coordinate z, and wherein the relationship between the at least one of the two or more the size, the color, the grayscale, the intensity, and the shape of the icon and the third coordinate z is substantially monotonic. (See Abstract line 6-10, Fig 1-3, col 1 line 22-37, col 2 line 28-47)

Regarding claim 12, refer to the discussion for the claim 1 hereinabove, Hancock discloses that the claimed feature of a system for conveying aircraft altitude to a human observer comprising: a receiver [80] for receiving latitude, longitude, and altitude information, wherein the third coordinate z represents an absolute altitude of the object relative to a geographic reference; a display [10,40]; and a processor to convert the altitude information to an icon having an icon characteristic, and to place the icon at coordinates corresponding to the latitude and longitude in the display, wherein the characteristic of the icon changes in response to changes in the altitude, wherein the relationship between the icon characteristic and the altitude is substantially monotonic. (See Abstract line 6-10, Fig 1-3, col 1 line 22-37, col 2 line 28-47)



Regarding claim 13, refer to the discussion for the claim 1 hereinabove, Hancock discloses that the claimed feature of a method for conveying location of an object including: receiving [80] location information regarding the object, the location information including a first coordinate x, a second coordinate y, and a third coordinate z, wherein the third coordinate z represents an absolute altitude of the object relative to a geographic reference; correlating the first and second coordinates (x,y) with a location of an display [10,40]; and correlating the third coordinate z with a characteristic of the icon, wherein the icon characteristic changes in response to changes in the third coordinate z, and wherein the relationship between the icon characteristic and the third coordinate z is substantially monotonic. (See Abstract line 6-10, Fig 1-3, col 1 line 22-37, col 2 line 28-47)

Regarding claim 14, refer to the discussion for the claim 1 hereinabove, Hancock further discloses that the characteristic of the icon which changes is intensity [i.e. intensity of color, as manipulating the intensity of color is well known in an analogous art in the process of bit modification] of the icon and third means is for correlating the third coordinate z with the intensity of the icon. (See Abstract, col 2 line 21-24, col 2 line 31-36)

Regarding claim 15, refer to the discussion for the claims 1 and 14 hereinabove, Hancock discloses that the intensity of the icon is selected from a limited number of discriminably different intensities. (See Abstract, col 2 line 21-24, col 2 line 31-36)

Regarding claim 16, refer to the discussion for the claim 1 hereinabove, Hancock discloses that a continuously variable relationship between the intensity of the icon and the third coordinate z. (See Abstract, col 2 line 21-24, col 2 line 31-36)

Regarding claims 17-18, Hancock does not explicitly disclose that the intensity of the icon is directly correlated with the third coordinate z, such that a larger value of the third coordinate z correlates with a higher/lower intensity of the icon. However, as the combination of Hancock and Beasley teaches the changes of objects based on its altitude value, it would have been obvious to one skilled in the art to represent those changes with higher or lower intensity to meet the user's preference. [it is noted that the way of changing the characteristic of object by either direct-correlation or invert-correlation has no functional difference [i.e. advantage] compare to the prior art]

Regarding claim 19, refer to the discussion for the claim 1 hereinabove, Hancock discloses that the characteristic of the icon which changes is one or more colors of the icon and third means is for correlating the third coordinate z with the one or more colors of the icon. (See Abstract, col 2 line 21-24, col 2 line 31-36)

Regarding claim 20, refer to the discussion for the claim 1 hereinabove, Hancock discloses that the one or more colors of the icon are selected from a limited number of discriminably different color aspects. (See Abstract, col 2 line 21-24, col 2 line 31-36)

Regarding claim 21, refer to the discussion for the claim 1 hereinabove, Hancock discloses that the one or more colors of the icon have a continuously variable relationship with the third coordinate z. (See Abstract, col 2 line 21-24, col 2 line 31-36)

Regarding claim 22, Hancock discloses that the characteristic of the icon which changes is shape of the icon and third means is for correlating the third coordinate z with the shape of the icon.

Regarding claim 23, Hancock discloses that the characteristic of the icon which changes is a selected one of size, color, grayscale, intensity, and shape of the icon. (See Abstract, col 2 line 21-24, col 2 line 31-36)

Regarding claim 24, Hancock discloses that the characteristic of the icon which changes is size of the icon. (See Abstract, col 2 line 21-24, col 2 line 31-36)

Regarding claim 25, Hancock discloses that the characteristic of the icon which changes is size of the icon. (See Abstract, col 2 line 21-24, col 2 line 31-36)

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Regarding claim 26, Hancock discloses that the size of the icon is selected from a limited number of discriminably different sizes. (See Abstract, col 2 line 21-24, col 2 line 31-36)

Regarding claim 27, Hancock discloses that correlating includes a continuously variable relationship between the size of the icon and the third coordinate z. (See Abstract, col 2 line 21-24, col 2 line 31-36)

Regarding claims 28-29, with discussion in claim 17-18, Hancock discloses that correlating includes a direct relationship between the size of the icon and the third coordinate z, such that a larger value of the third coordinate z results in a larger size of the icon. (See Abstract, col 2 line 21-24, col 2 line 31-36)

Regarding claims 30-38, claims 30-38 are similar in scope to the claims 14-22, and thus the rejections to claims 14-22 hereinabove are also applicable to claims 30-38.

### ***Response to Arguments/Amendment***

Applicant's arguments with respect to claims 1-13 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Applicant's amendment (filed on 3-30-2005) necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Chung whose telephone number is (571) 272-7657. He can normally be reached Monday-Thursday and alternate Fridays from 7:30am- 5:00pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael, Razavi, can be reached at (571) 272-7664.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

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**or faxed to:**


**(703) 872-9306 (Central fax)**

**(703) 872-9314 (for Technology Center 2600 only)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

djc  
September 13, 2005



**MICHAEL RAZAVI**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2600**